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Too Light To Fight?  
Considerations For The Light FSB  
In Support Of The Light-Heavy Brigade

A Monograph  
by  
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### ABSTRACT

#### TOO LIGHT TO FIGHT? CONSIDERATIONS FOR THE LIGHT FSB IN SUPPORT OF THE LIGHT-HEAVY BRIGADE

by Major Kevin A. Leonard, USA, 68 pages.

The purpose of this paper is to examine the ability of the light forward support battalion (FSB) to support a task organized light-heavy brigade. The idea of mixing light and heavy forces at the brigade level is not new, but little has been written about the support needs of a mixed force.

This paper begins with a discussion of the history of the 10th Mountain Division (Light) in World War II and moves forward to the same division during exercise Return of Forces to Germany (REFORGER), January, 1990. REFORGER 90 served as a test for mixing light and heavy forces at the division level and was followed by National Training Center (NTC) rotation 90-8 (April-May, 1990) which assessed the mixing of light and heavy forces at the brigade level.

The lessons of NTC rotation 90-8 and REFORGER 90 are examined to identify common ground. The link between the two exercises was the need for a change in light division sustainment structure. In August 1990, the Army Chief of Staff directed light division support command conversion to the FSB structure.

Doctrine for the use of the light FSB is still in draft stages. The analysis portion of this paper attempts to quantify the needs of the light-heavy brigade and the ability of the light FSB to support it. The analysis indicates that by itself the light FSB is not capable of supporting the light-heavy brigade. However, if properly augmented with support assets from a heavy division, the light FSB is more than capable of meeting the brigade's needs. The study concludes by examining draft doctrine and recommending the support structure outlined in appendix K as one method for light and heavy planners to employ when sustaining the light-heavy brigade.

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I can assure you, in a smaller Army, we can only fight heavy-light or light-heavy.... The details of how to get the most out of force mixes have yet to be determined.--LTG Taylor, Commander III Corps, U.S. Army, in a presentation to the School for Advanced Military Studies, 29 October, 1991, (Quoted with LTG Taylor's permission).

## CHAPTER I. INTRODUCTION

General Taylor's comments highlight the focus of this paper, the problem of how to support combined light and heavy forces. This is not a new problem, and this is not the first paper to consider what to do about the light-heavy force mix. However, little has been written about one aspect of mixing light and heavy forces--the light-heavy brigade. Appendix A, FM 71-100 Division Operations offers the following as possible light/heavy task organizations:

1. Separate heavy brigade assigned under operational control (OPCON) to a light division.
2. Heavy battalion OPCON to a light division.
3. Heavy battalion OPCON to a light brigade.
4. Heavy brigade attached to a light division.
5. Heavy battalion attached to a light division.

The organizations are in descending order of preference. A separate heavy brigade OPCON to a light division is the preferred option because it arrives with its own combat support and combat service support.

In contrast, recent U.S. Army experience shows that a heavy battalion attached to a light division is more probable than FM 71-100 suggests.

During Operation "Just Cause" in December, 1989 heavy elements of the 5th Infantry Division (Mechanized) deployed to Panama and in some cases were attached to 7th Infantry Division (Light) brigades.<sup>1</sup> The results of this light-heavy task organization were generally favorable, except for the logistics.<sup>2</sup> Convinced that a light-heavy brigade was a viable force mix option, General Carl Vuono, the Army Chief of Staff from 1987-1991, directed that a special national training center (NTC) rotation, # 90-8, test the light-heavy brigade concept with elements of the 7th Infantry Division, and 1st Infantry Division (Mechanized).<sup>3</sup> NTC rotation #90-8 took place in April 1990, not more than four months after "Just Cause."

Before operation "Just Cause," it appears that the Army was more concerned with validating light infantry divisions as a force than determining its capabilities and utility. In the early days of 1985, the Army Chief of Staff, General Wickham told the battalion commanders of the new light divisions:

During World War II, our experimental light divisions were abandoned, largely because deficiencies were considered signs of failure rather than challenges to be overcome. We will not allow that to happen this time. You will see emerging problems first and will have a greater sense of urgency than others.<sup>4</sup>

The reasons for the reintroduction of the light division into Army force structure are numerous and complex, calling

for more explanation than this study allows. In retrospect, the 1983 pentagon budget fight, the potential for conflict in Central America (like El Salvador), and limited strategic airlift capacity (the Air Force cannot deploy a heavy division in one lift) were factors which played a part in General Wickham's decision to form light divisions. Additionally, the light divisions offered the ability to place a large number of infantrymen in the field; moreover, they were cheap to create and operate. In a time of budget cutbacks and force reductions it seems reasonable to expect that light divisions will remain a part of the Army's force structure.

Given that light divisions will be a part of our future force structure, it is important for military planners to look carefully at what a light division is, what it requires, and how it will be supported. Inevitably, the question of a mixed light-heavy force will arise. In 1987 General Vuono stated:

The capabilities that the light division give us for mid to high intensity conflicts, particularly used in conjunction with heavy forces, gives us an increased response capability.<sup>5</sup>

He went on to say that corps combat service support organizations would have to provide much of the support to the light divisions.

General Vuono's predecessor, General Meyer thought otherwise. General Meyer believed that corps assets were not an acceptable solution for the support of



light forces--the absence of any habitual relationship would cause support to fail when it was needed most. Further, General Meyer suggested that relying on corps support ignored the lessons of WW II where most combat service support came from army or corps level, but generally not in a timely fashion.<sup>8</sup> The assessment is that combat service support for the light division and light-heavy forces must be an integral part of its structure. The light FSB may be the organization needed for light division and light-heavy force sustainment.

Currently, doctrine on what to do with mixed forces and how to support them is incomplete. The goal of this paper is to answer the question: "Can the light FSB provide the support needed for a light-heavy brigade in combat?" To answer this question, we must first understand the parent organization of the light-heavy brigade.

### The Light Infantry Division

The U.S. Army reintroduced the light infantry division (LID) into the force structure in 1985.<sup>7</sup> Creation of the LIDs created much concern over its abilities to be used on a global basis in support of a myriad of contingency plans.<sup>8</sup> While its first priority is low intensity conflict, the LID also expects to fight in mid to high intensity conflicts.

Currently, there are four light infantry divisions in the U.S. Army, the 6th, 7th, 10th and 25th. Projections for future force structure indicate between ten to twelve active duty divisions will be retained, perhaps less. Current indications are that at least three of the divisions retained will be light.<sup>9</sup>

The LID is designed to be strategically mobile, utilizing 500 C-141 equivalent aircraft or less. (Interestingly, none of the existing light divisions has accomplished deployment while limited to 500 C-141 equivalent aircraft) Because of this deployability constraint, the LID lacks antiarmor firepower, tactical mobility, armored protection, and combat service support capability.<sup>10</sup> With these limitations, the LID is not designed to be deployed against a heavily armored threat. Since a number of America's potential adversaries (like Libya or North Korea) possess significant armored forces, the role the LIDs could play in a conflict with these

countries is questionable.<sup>11</sup> A light-heavy mix of forces may be one solution to the problem.

One way to mix forces is the formation of a light-heavy brigade.<sup>12</sup> For our purposes, this brigade would have an end strength around 3,660 soldiers organized in three light infantry battalions, one heavy task force (two mechanized infantry companies, two armor, one anti-tank), combat support, and combat service support (CSS) units.

Once it is formed, sustainment of the light-heavy brigade presents logistics planners with several difficulties. For example, heavy forces consume larger quantities of fuel, ammunition, and repair parts than light forces. Light forces in turn consume more expendables like water and batteries than heavy forces. Before 1990, the logistics system of the heavy and light divisions were not compatible.<sup>13</sup> They used completely different combat service support structures that did not blend well. A review of the history of the support structures highlights the differences.

In search of a more responsive CSS system, heavy division support commands (DISCOM) reorganized under the Army of Excellence in 1985 into forward support battalions (one per brigade), a main support battalion, a division material management center, an aircraft maintenance company and a division support command headquarters company (Appendix A). Although the heavy divisions changed, the

newly formed light division support commands remained under the old support structure. In the opinion of the light divisions, the old CSS structure was more flexible, and better suited for deployment requirements than the new FSB. The LID DISCOM consisted of a supply and transportation battalion, maintenance battalion, medical battalion, aircraft maintenance company, and headquarters company (Appendix B). In essence, the difference between heavy and light division combat service support (CSS) was multi-functional versus functional battalions. The difference in organizations meant that when a heavy battalion became attached to a light division (as in April 1990), it would not receive support from a single integrated source like its own FSB. In addition, the absence of a single point of contact for support created confusion in the minds of the maneuver and support forces alike.

Over the last six years, the Army recognized the multi-functional forward support battalion as the most flexible of its CSS organizations.<sup>14</sup> In a move to capitalize on the FSB's flexibility and standardize logistics organizations, the light divisions provisionally reorganized with multi-functional battalions in June 1991 (Appendix C). As a result of the reorganization, the light FSB became a reality.<sup>15</sup> With an understanding of the structure of the light FSB and the light-heavy brigade, some assumptions must be made before continuing this study.

### Assumptions

The following assumptions are those necessary to ensure that the light-heavy brigade is a viable concept. Further, these assumptions reduce the scope of this study allowing it to focus on the light FSB and the sustainment of a light-heavy brigade. The principal assumption this study makes is that Army planners will continue to plan for the employment of a task organized light-heavy brigade. Secondly, the heavy task force of the light-heavy brigade will be attached to the light brigade. This means the light brigade will be responsible for command, control, and logistical support of the heavy task force. Third, the corps support command (COSCOM) will provide no special support to the light-heavy brigade. Fourth, the loss of a heavy task force will not detract from the current mission of its parent heavy brigade. Fifth, all calculations for fuel consumption in this study are based on the premise that JP-8 (a single fuel source) is available. Lastly, heavy forces will come to the light brigade with their internal combat service support assets. With an understanding of these assumptions, we begin with an examination of the "roots" of the light-heavy brigade.

## CHAPTER II. HISTORICAL BACKGROUND

People never learn do they? Historians are sitting around with the answers and they're reinventing the wheel--Dr Lynn Simms, October 1983, Command Historian, U.S. Army Logistics Center.<sup>16</sup>

Dr. Simms referred to the idea of reintroducing the light divisions to the force structure. In 1983 this was an important topic, the Army chief of staff was convinced of the need to develop an organization that could put more riflemen on the battlefield.<sup>17</sup> Unfortunately, it appears that no one in the force development business listened to historians: as General Wickham stated, the light divisions would work because we would make them work.

To find the roots of the light divisions, this study starts with the history of World War II (WW II). The light divisions were formed, tested, deployed, and ultimately abandoned during WW II. Examination of the time period 1943-1945 may reveal the reasons light divisions were created, their differences from regular infantry divisions, and lastly, why they were abandoned.

Three light divisions were organized in 1943, the 10th (Pack, Alpine), the 71st (Pack, Jungle) and the 89th (Truck). In theory these divisions, which were primarily composed of foot soldiers, would be easy to supply and maintain and could be reinforced from non-divisional pools. Justification for the light divisions came from terrain analysis for the invasion of Europe and the Army's

experience in Pacific operations. A number of senior Army officers believed that fighting in mountain and jungle terrain called for a division much lighter than the standard infantry division.<sup>18</sup> The standard division in 1943 was the "triangular" division. Its strength--766 officers, 44 warrant officers, and 13,289 enlisted men, organized as shown in Appendix D.

In comparison with the triangular division, the light division had 491 officers, 16 warrant officers, and 8,468 enlisted men. Equipment in the division included 267 jeeps, a number of 75mm pack howitzers, 60mm and 80mm mortars, and lightweight machine guns. Approximately half the jeeps were committed as prime movers for artillery.<sup>19</sup>

Everything was in miniature in the new unit, but with promise of effectiveness. The infantry regiments comprised only thirteen companies instead of the customary nineteen...with no clearing detachment, the medical battalion had only three companies and a headquarters detachment of eight men, and eight officers. The ordnance platoon had light equipment sufficient for third echelon maintenance.<sup>20</sup>

The light divisions were also specialized for a particular mission. Mountain troops were not expected to fight in the jungle and vice versa. The light division concept met trouble right from the start. General MacArthur, designated to receive the majority of all future light divisions, declared them too light for the Pacific theater.

As now organized this division appears to have insufficient fire power, lacks depth, is weak logistically, and is poorly organized for sustained combat in difficult terrain.<sup>21</sup>

Specifically, the pack 75 mm howitzers and 1/4 ton vehicle provided too little firepower or sustainment (respectively) to maintain a beach assault.

Following General MacArthur's comments, Lieutenant General MacNair, Commander Army Ground Forces, made two relevant "command" decisions. First, no additional light divisions would be developed. Second, the existing light divisions would be tested at Hunter-Liggett military reservation in California.

The first two units tested were the 71st and the 89th. In the spring of 1944, these two divisions maneuvered against each other up and down the rugged terrain of Hunter-Liggett. The test was a complete and abysmal failure, particularly in logistics.<sup>22</sup> Insufficient transportation created sustainment problems which in turn affected combat power. General Finley, commander of the 89th Division offered the following:

Three battalions of infantry, that is, one third of our infantry fighting strength, were continuously being used for the hand carrying of supplies.<sup>23</sup>

General Spraggins of the 71st Division noted: "All supply lines were overextended and, for two days, the division supply units were not able to supply forward combat units."<sup>24</sup>



In describing the Hunter-Liggett maneuvers, evaluators from the U.S. Army's III Corps supplied the following findings:

1. Light Divisions lacked cross-country mobility
2. Light Divisions could not sustain themselves
3. Light Divisions were incapable of sustained offensive operations
4. Personnel replacements for light division were simply not available.

The recommendation was to halt the experiment. General MacNair agreed and the 71st and 89th were reorganized into triangular divisions and deployed to Europe.

However, General MacNair felt strongly about the need for "mountain infantry" to fight in Europe, and so decided not to dismantle the 10th Division (Pack, Alpine). This left the 10th Division (Pack, Alpine) as the sole light division in the Army.<sup>25</sup>

### CHAPTER III. THE 10TH MOUNTAIN DIVISION (Yesterday)

The 10th Light Division (Pack, Alpine) was redesignated the 10th Mountain Division in November 1944. The 10th Mountain Division was never tested. Instead, it expanded to about 14,000 men and deployed to Italy in 1945.<sup>26</sup> "The mountain division was substantially an infantry (triangular) division in which motor transport was replaced by mules."<sup>27</sup> During its expansion process, the division received three quartermaster pack companies, a heavy weapons company, and a medical clearing company as new elements. The following description of the reorganized division tells the story of a "light" division growing heavier:

The combat elements of the 10th mountain division consisted of three infantry regiments of three infantry battalions each with three rifle companies plus a heavy weapons company; division artillery of three artillery battalions with 75-mm pack howitzers; an antitank battalion with two antitank companies; and a reconnaissance troop.<sup>28</sup>

The support elements were a quartermaster battalion of three pack companies and one truck company with 50, 2½ ton trucks; an engineer battalion of four line companies, including a motorized company; a medical battalion of six companies including a veterinarian company; and division special troops which included an ordnance and signal company.<sup>29</sup>

By the end of the war the division had more heavy equipment attached to it for transport and firepower, not the least of which were 50 two and one half ton 6x6 amphibian trucks called DUKW's.<sup>30</sup>

The 10th Mountain Division's fighting action was limited to the last four months of the war. The problem the division faced was finding a theater to fight in--no one

wanted them. Finally, Lieutenant General Mark Clark whose Fifth Army was "desperate for additional divisions to break the bloody Italian stalemate," asked that the division be assigned to his command.<sup>31</sup> Despite its short exposure to combat, this unique organization played a key role in the conclusion of the war in Europe.

The 10th Mountain Division entered combat in Italy on 18 February, 1945 as a part of "Operation Encore." Besides its own maneuver forces, the division had attached a 105mm howitzer battalion, a 4.2" mortar battalion, two tank destroyer battalions, and a tank battalion.<sup>32</sup> No longer a light division, this was truly a combined arms force. In this respect, the division resembled most of the other European fighting forces.

By the beginning of 1945...The tendency was to have only two wholly distinct types of divisions--infantry and armored....even the distinction between these two became less pronounced.<sup>33</sup>

During the first phase of the fighting in "Operation Encore," the 85th, 86th, and 87th regiments of the 10th Mountain Division fought a series of battles along Monte Belverde, Monte Gorgelesco, Valpiana ridge, and Monte Della Torraccia. Each was a tough fight calling for climbing then fighting, followed by some more climbing. (Appendix E -- Operation Encore map). It took the division four days to accomplish its objectives.<sup>34</sup>

In phase two, the 10th Division fought for more mountains: Grande d'Aiano, Della Spe, Della Castellana, and

Valbura, this time it took only two days to succeed. Following its mountain action, the division participated in the assault on Bologna and the Panara and Po rivers, all of which they completed in equally short order.<sup>35</sup> After a brief pause, the division received the mission to assault Verona on the other side of Lake Garda and capture Mussolini's headquarters. Fighting as a combined arms team with tanks and tank destroyers in support, it used its 50 DUCKW's to conduct an assault crossing of the lake--only to find the enemy in full retreat (Appendix F).

On 2 May, 1945 the Germans surrendered and operations ceased.<sup>36</sup> During "Operaton Encore" and the assault on Lake Garda, the division had moved 60 miles from the Reno river to the Alps. Three years of difficult training culminated in 114 days of combat, at a pretty high cost.<sup>37</sup> The division had sustained the heaviest casualties of any division in Italy, 992 KIA, and 4,154 wounded.<sup>38</sup> "No other division trained so long, or fought so briefly."<sup>39</sup>

The historical example of the light divisions in WW II provides several lessons relevant to modern light divisions and a light-heavy brigade. First, deficiencies that occurred during testing of the light divisions resulted from the assumption that the light infantry division could perform as a standard infantry division. Each light division was expected to move, fight, and resupply itself. The absence of dedicated transportation assets meant movement of men and

equipment by foot. The movement of supplies alone consumed up to one third of the fighting strength of each division. Ultimately, the light divisions' inability to resupply itself meant that only one light division was kept on active roles--the 10th Mountain Division.

Second, immediately after the 10th Mountain Division arrived in theater it began to get heavier (i.e. artillery, tanks, mortars, DUCKW's etc.). The addition of heavy equipment allowed the division to conduct operations beyond its inherent capabilities. The assault on Lake Garda offers a classic example of combining light and heavy forces to achieve tactical objectives. Despite the 10th Mountain Division's success, the best description of the light division experience in WW II indicates a number of problems.

*In many ways, the experience of the U.S. Army with the light division during World War II illustrated a lack of detailed coordination on overall expectations and the pitfalls of institutional loyalty on "settled" matters.<sup>40</sup>*

The opening quotation of this chapter implies that when the modern light divisions were formed, the U.S. Army seemed to be ignoring history. Not surprisingly, the modern version of the 10th Mountain Division experiences many of the same problems of its WW II predecessor.

#### CHAPTER IV. THE 10TH MOUNTAIN DIVISION (Today)

By the Army Chief of Staff's order, the 10th Mountain Division was reactivated in 1985 (its structure is outlined in Appendix G). Inheriting the tradition of its WW II ancestor, the division has participated in several heavy-light and light-heavy operations. The most recent example of the division combining light and heavy forces together occurred from 15-26 January 1990, during Exercise "Centurion Shield"-- Return of Forces to Germany (REFORGER 90). The exercise was designed to test the abilities of the light division in a European mid to high intensity conflict.<sup>41</sup>

During REFORGER 90, the 10th Mountain Division received the 1st Brigade, 1st Armored Division in operational control (OPCON) status. Under OPCON status, the 1st Armored Division (1AD) remained responsible for support of its 1st brigade instead of the 10th Mountain Division. Specifically, the 501st Forward Support Battalion provided combat service support for the 1st brigade, 1st Armored Division.<sup>42</sup>

According to FM 71-3 Armored and Mechanized Infantry Brigade, the OPCON brigade should not have been further task organized within the division. However, mission requirements assigned by corps, forced division planners to task organize the OPCON 1st Armored Division brigade with a light battalion and 1AD assigned a mechanized infantry battalion to the 2nd Brigade, 10th Mountain Division.

Reminiscent of WW II, the division had created light-heavy and heavy-light brigades to complete assigned tasks.<sup>43</sup>

VII corps orders for REFORGER 90 tasked the 10th Mountain Division to defend against heavy force opposing brigades assigned to Europe. Ultimately, three battalions of mechanized/armor units penetrated the OPCON heavy-light brigade's sector. The division was forced to reposition its units. Following this action, the defensive phase of the exercise was terminated.<sup>44</sup> Despite a short, one week exercise, the division learned some valuable lessons about mixing light and heavy forces.

The shifting of units caused by task organizing light and heavy forces confused the combat service support system and resulted in shortages of class III (fuel) and class V (ammunition) for both forces.<sup>45</sup> This is not surprising considering the OPCON status of forces.

FM 100-5 states that OPCON status places a unit under the operational control of a unit or formation. CSS support is not incumbent upon the unit with operational control. In that, the heavy brigade was OPCON to the light division, there was only heavy sustainment and light sustainment.<sup>46</sup>

FM 100-15, Corps Operations also states that OPCON should not exceed 72 hours.<sup>47</sup> This time limit did not support the light division commander's scheme of maneuver and had an adverse effect on combined operations by causing units to rotate out of sector to receive combat service support.<sup>48</sup> In the support areas, things were just a little different.

During REFORGER 90, the 10th Mountain Division Support Command (DISCOM) consisted of three functional battalions, a

medical battalion, a maintenance battalion, and a supply and transport battalion (Appendix B). In support of the division's effort, these functional battalions formed three Forward Area Support Teams (FAST) combining companies from each of the functional battalions. To coordinate the operations of the FAST, a Forward Area Support Coordinator (FASCO) collocated with the brigade S-1 and S-4 in the administrative/logistics operations center (ALOC) in the brigade support area (BSA).<sup>49</sup>

The FASCO is responsible for coordinating all direct support logistics activities for a maneuver brigade. Doctrinally, the FASCO is supposed to be a major with a staff of one captain and four NCO's. In the 10th Mountain Division, the FASCOs were all captains with only 50% of their authorized staffs.<sup>50</sup> Under the FASCO concept, no one individual in the BSA is responsible for synchronizing combat service support, rear security, or command and control. The result is a break in the unity of command and generally poor security in the brigade rear area. The formation of multi-functional FASTs by the 10th Mountain DISCOM was an attempt at a non-doctrinal solution to the problem of forward support and coordination.<sup>51</sup>

In effect the FASTs became like heavy FSBs, with a supply company, medical company, and maintenance company. Each FAST was provisionally commanded by one of the functional battalion commanders. <sup>52</sup>



Generally, the division recognized five advantages in having an FSB over the FASCO/FAST system: 1) The FSB offers a complete chain of command and staff for planning and coordination. In the old FAST system "Ad Hoc" commanders were created for temporary support; often a senior captain with no staff. The FSB offers habitual brigade support and a command link. 2) The FSB with its staff can provide a more coordinated rear security plan than a temporary FAST in combination with the brigade S-4. 3) The FSB is more versatile than the FAST, capable of supporting not only the light forces, but also mechanized and armor attachments without excessive corps augmentation. 4) The FSB is interchangeable with other FSB's and more easily deployed away from the division base. 5) The brigade S-4, when supported by an FSB, can put all his efforts into planning future logistical operations and support. Under the old FAST system, the brigade S-4 had to split his five man cell between planning and control of the BSA.<sup>53</sup>

REFORGER 90 reinforced the ideas that the 10th Mountain Division had about its CSS structure versus the advantages of the FSB structure. An independent evaluation team in charge of analysis of the exercise observed the following:

- 1) The DISCOM of the light division is too austere to support the attachment of heavy forces.
- 2) Liaison and coordination between heavy and light CSS did not occur because heavy force CSS was not integrated with

the 10th Mountain Division support operations. 3) Rear operations within the BSA lacked command and control. 4) FAST CSS assets are too austere to support heavy forces without augmentation from corps. 5) The FASCO/FAST violates the principle of unity of command.<sup>54</sup>

Based on its findings, the team made two recommendations. First, light infantry divisions need to implement the FSB support structure to standardize light and heavy force CSS operations. Secondly, Tactics, Techniques, and Procedures (TTP's) must be developed to address sustainment of cross attached maneuver units (heavy and light) at brigade level and below.<sup>55</sup> In and of itself, REFORGER 90 may not have been enough to convince Army leaders to adopt the FSB structure in the light divisions. However, another experiment took place in April, 1990 which validated a number of the lessons from REFORGER 90.

## CHAPTER V. NTC ROTATION 90-8

In the minds of the observer/controllers, and several others, this rotation became the rotation from hell.-- Anonymous Fort Irwin Observer.

National Training Center (NTC) rotation 90-8 was the first light-heavy rotation conducted at Fort Irwin, California. Directed by General Vuono, one of its goals was to test the ability of the combat service support structure to support a light-heavy brigade.<sup>56</sup> General Vuono directed the light heavy brigade consist of elements of the 1st Brigade, 7th Infantry Division, and the 5th Battalion, 16th Infantry from the 1st Infantry Division (Mechanized). In a contingency deployment scenario, Task Force 5-16 was attached to the 1st Brigade, 7th Infantry Division (Light).

Generally, NTC rotation 90-8 validated the concept of a light-heavy brigade as a mix of forces. However, observers and participants alike agreed that TTP's needed to be developed to enhance the integration of light and heavy forces.<sup>57</sup> Within combat service support, several issues required resolution before a light-heavy brigade could become a viable concept. Most of the issues were identical to those discovered by the 10th Mountain Division on REFORGER 1990.<sup>58</sup> Besides the salient points about the FSB versus FAST/FASCO debate, some hard data was obtained on such issues as maintenance of the heavy force, rear security, movement, and medical support. An examination of each area follows.

### Maintenance

Maintenance of the heavy force presented an interesting problem for the light-heavy brigade commander, his S-4, and FASCO. The light maintenance company supporting the FASCO had no real capability to maintain the 24 M-1's and 36 M-2/3's of the heavy force. Fortunately, 1st Infantry Division planners had envisioned the potential problems a heavy task force might have when attached to a light division. Task force 5-16 deployed with the equivalent of 50% of a heavy FSB to support its effort (Appendix H). This FSB (-) included a heavy maintenance company (-) with the dedicated maintenance support team for Task Force 5-16. Despite the efforts of this company, the readiness rate on combat systems was 65% when the last battle of rotation 90-8 occurred.<sup>59</sup> This low readiness level resulted from the general failure of the light brigade chain of command to consider the impact of maintenance on mission accomplishment. In part, the brigade's failure to focus on vehicle readiness happened because the heavy FSB (-) command and control element was removed on day nine of the exercise by the NTC commander. General Clark believed the presence of the heavy FSB command and control (C<sup>2</sup>) structure was artificial.

In order to test the ability of the light-heavy brigade to control and sustain itself, the heavy FSB C<sup>2</sup> cell was placed in an administrative area and ordered not to

interfere with the remainder of the exercise. Without the FSB commander and staff to focus on maintenance, this critical area did not receive the required command attention.<sup>60</sup> In addition to monitoring maintenance, effective command and control of the BSA is also vital in establishing rear security.

#### Rear Security

With no one controlling rear operations, the light-heavy brigade's rear area became particularly vulnerable. The same problem the 10th Mountain Division had with unity of command resurfaced, resulting in confusion for all participants.<sup>62</sup> The light brigade commander's focus was on the forward battle. The light brigade S-4 and FASCO, who had recently returned from operation "Just Cause," were not oriented towards mid to high intensity conflict and its potential for destruction in the rear area. The brigade S-4, nominally in charge of the BSA, failed to plan for rear security and defense of the BSA. As a result, the BSA was overrun by motorized rifle platoons on two different occasions, resulting in loss of all CSS assets including the 5,000 gallon tankers.<sup>63</sup> In spite of the absence of effective rear area C<sup>2</sup>, demands for support continued to flow. Paramount among the demands was the need to move soldiers, supplies and equipment.

### Movement

Transportation for NTC rotation 90-8 was barely sufficient to support the mix of forces, despite the presence on an entire light/medium truck (TMT) company from the heavy division. This occurred in large part because no one person managed the truck company, and because light infantrymen needed transportation to move around the desert. Walking 15-20 kilometers in the desert adversely effects the light soldier's ability to fight by causing dehydration and exhaustion. The light brigade chain of command realized the restrictions of the desert environment and capitalized on the value of motor transport in preventing soldier fatigue. Trucks were then tasked for movement in almost every mission, even those of 5-10 kilometers. The increased tasking of the truck company for movement of soldiers meant that other supplies often could not be moved. At one point, barrier material and repair parts were down-loaded to transport soldiers.<sup>64</sup> Despite the presence of a heavy transportation motor transport (TMT) company, the light-heavy brigade experienced transportation shortfalls. A simple solution to the problem would have been centralized control of all truck assets.<sup>65</sup> The difficulty in moving soldiers and supplies around the battlefield was echoed in moving medical patients off the battlefield.

### Medical Support

Medical support to the light-heavy brigade clearly highlighted the difference in operational tempo between light and heavy units. For example, the light medical company, used to operating in low intensity environments, was unfamiliar with the concept of ambulance exchange points (AXP's).<sup>66</sup>

An ambulance exchange point facilitates the ambulances of one element transferring patients to the ambulances of another. Doctrinally, the idea is that the higher echelon of command evacuates patients from the lower echelon. For example, the heavy task force uses its own tracked ambulances to move patients off the battlefield to the battalion aid station. At the battalion aid station, those patients needing further evacuation to the BSA are loaded onto ambulances belonging to the medical company of the FSB. Depending on the distances involved, the medical company ambulances then move the patients to an exchange point and transfer them to another set of medical company ambulances. The first set of medical company ambulances then returns to the battalion aid station. When the light medical company realized that the distances in the desert battlefield were too great for straight evacuation to the BSA, it also adopted the AXP technique.

During days 1-9 of the rotation, light forces lost an unnecessary number of simulated patients who died of wounds

exacerbated by slow evacuation procedures.<sup>67</sup> If a unified command and control structure like an FSB had been in place, cross fertilization of techniques and procedures (like AXPs), could have precluded the brigade's difficulties in patient evacuation.

#### Summary

NTC rotation 90-8 pointed out several problems in sustaining the light-heavy brigade. Light division support simply did not have the assets to support a light-heavy brigade, necessitating an augmentation by an FSB (-). The differences in light and heavy division combat service support structure created a void in the command and control (C<sup>2</sup>) process, especially after the heavy FSB C<sup>2</sup> cell was removed. Because of poor command and control, logistics support fell short in manning, fixing, moving, and protecting the light-heavy brigade. At the conclusion of NTC rotation 90-8, the most often heard comment from light infantry combat service supporters and those they supported was "we need FSB's in the light division"<sup>68</sup>. In August 1990, General Vuono decided to make that need a reality.



## CHAPTER VI. ANALYSIS

The first thing to think about then will be the question of subsistence; without supplies no army is brave, and a great general who is hungry is not a hero for long.--Frederick the Great

The mission of the light FSB is "to provide division level logistical support for divisional brigades and other divisional units in the brigade area."<sup>69</sup> To provide structure for analysis of the light FSB, this paper follows a fictional scenario that the light-heavy brigade has deployed to a mature theater, like Europe, with corps support in place. The brigade will participate in offensive operations for five days and must be able to provide its own support forward of the brigade rear.<sup>70</sup> What follows is an analysis of the ability of the light FSB to sustain the light-heavy brigade using the six sustainment functions: man, arm, fuel, fix, move, and protect.

### Man

The AirLand Battle sustainment function "Man" considers personnel replacements, health service support (HSS), food, water, clothing and field service support. Within this function, the FSB provides primarily food (class I), water distribution, and health service support for the brigade.<sup>71</sup> Requirements for supplying food and water to the brigade can be taken directly from FM 101-10/1/2

Staff Officers' Field Manual Organizational, Technical, and Logistical Data Planning Factors. Table 2-3 shows that

food is consumed at 6.62 pounds per man per day based on serving two T-rations and one meal ready to eat (MRE). Table 2-5 indicates that water will be consumed at 10 gallons per man per day in an arid climate.

According to its table of organization and equipment (TO&E), the light FSB is capable of handling 9.2 short tons (ST) of class I per day.<sup>72</sup> The FSB does not have the ability to purify water. In all DISCOMs, water teams come from the main support battalion. A water distribution point is established near the brigade support area class I point. The water team will normally use two reverse osmosis water purification units capable of purifying 600 gallons of water per hour. The water is then stored in several 3,000 gallon fabric tanks for distribution. In an arid environment a brigade team will store 40,000 gallons of water.<sup>73</sup>

Table 2-5, FM 101-10/1/2 allows us to calculate that, in a single day, the light-heavy brigade (strength-3,660) will consume 36,660 gallons of water and 12 ST of class I. In five days of offensive combat in a arid (worse case) environment, the light-heavy brigade will need 60 short tons of class I, and 181,800 gallons of water.

As currently staffed, the light FSB needs augmentation to distribute the 14 ST shortfall of required class I or planners could change the meal cycle to two MRE's per day and one T-ration. According to table 2-5, FM 101-10-1/2, changing the meal cycle to M-T-M would drop the daily short

ton requirements to 7.66 ST for the light-heavy brigade, which is well within the light FSB's 9.2 ST capability.

Besides being well fed, it is important for a soldier to remain healthy. Under the modular concept, health service support is not a great deal different between light and heavy divisions. In both cases, the medical company of the FSB is charged with providing evacuation, surgical, back-up medical, dental, and psychiatric care to the brigade. To accomplish this, the medical company has eight, four litter WHEELED ambulances, a physician, a physician assistant, a dentist, and a psychiatric specialist.<sup>74</sup>

ST 101-6, The G-1/G-4 Battle Book shows that for 5 days of mid to high intensity combat, the light-heavy brigade could expect the following casualties:

1st day  $3,660 \times 6.6\% = 241$

Succeeding days  $3660 \times 3.5\% = 128 \times 4 = 512$

Total for 5 days offensive combat = 753

Of the 753 casualties, we could expect 18% (135) killed in action, 72% (542) wounded. 10% (76) missing. Of the 72% wounded, 26% (140) would be treated at the battalion aid station and returned to duty. This would leave 46% (402) roughly 80 patients a day, for treatment or processing through the FSB treatment/evacuation chain.<sup>75</sup>

Given that the number of soldiers it supports is almost doubled (1,794 to 3,660) and that organic ambulances could

only move 32 patients at a time. It is reasonable to expect that the FSB medical company alone would be overwhelmed. However, the light division main support battalion (MSB) can augment the light FSB medical company with an area support section. The area support section consists of a treatment squad, an ambulance squad, an area support squad, and a patient holding squad. The treatment squad is authorized one physician, one physician assistant, two emergency medical technicians, and four medical specialists. The ambulance team consists of two wheeled ambulances with a medic and driver for each. The area support squad has a dentist, dental specialist, X-ray specialist, and medical laboratory specialist. The patient holding squad has two practical nurses, two medics, and a 40 patient holding capacity.<sup>76</sup> In effect, this augmentation nearly doubles the capability of the medical company of the FSB. By allowing for two ambulance trips a day, the augmented light medical company could evacuate 80 patients a day. Once the patients arrived at the BSA, the augmentation ensures a sufficient number of physicians, assistants, and other medical specialists are available to provide treatment. Having devised a plan to maintain the strength of the light-heavy brigade, it is imperative that the force is armed for combat.

### Arm

Under the maneuver oriented ammunition distribution system (MOADS), the light FSB ammunition transfer point (ATP) is capable of supplying up to 410 ST of ammunition per day. A combination of tables 2-16 and 2-19, FM 101-10-1/2 indicates that the required ammunition supply rate for day one of the offense is 82 ST which decreases to 79 ST by day five. The ATP can easily handle this requirement. The other side of the "arm" equation is to determine the ability of the supported force to haul its ammo.

For the purposes of this study, the light battalions of the light-heavy brigade have no ammunition haul capacity. The light FSB and the heavy task force must provide the cargo haul capabilities for the brigade. With its 28 M-1 tanks, 28 Bradley fighting vehicles, 12 improved TOW vehicles, 20 5-ton cargo vehicles, and four 11-ton cargo vehicles, the heavy task force begins combat with a dry cargo haul capacity of 132 ST and ends on day 5 with a 96 ST capacity.<sup>77</sup> Note that 25% Attrition is factored in to portray decreases in support capabilities. According to its TO&E, the light FSB would begin with a dry cargo haul capacity of 105 ST. With attrition, this decreases to 79 ST by day five. In total, the light-heavy brigade can haul 237 ST of cargo on day one, decreasing to 175 ST of cargo on day five. Since the brigade's ammunition haul requirements never exceed 82 ST, the light FSB, combined with heavy task force

assets. has more than enough cargo and storage capacity to arm the force for five days of offensive combat. While the vehicles of the light-heavy brigade allow great mobility, firepower, and cargo haul capacity, they also consume large quantities of fuel.

#### Fuel

When calculating refuel capability, the heavy task force will normally have seven 1,800 gallon tank and pump units and four 2,500 gallon fuel trucks for a total capacity of 22,600 gallons. Added to these numbers is the capacity of the M-1.  $504 \text{ gallons} \times 28 = 14,112$ ; the M-2,  $28 \times 175 \text{ gallons} = 4,900$ ; the ITV,  $95 \text{ gallons} \times 12 = 1,140$  and miscellaneous support systems accounting for 4,355 gallons of capacity. The total capacity of the heavy task force is 47,107 gallons.<sup>78</sup>

The current TO&E authorizes the light FSB a fuel system supply point (FSSP) capable of supplying 60,000 gallons of fuel.<sup>79</sup> Unfortunately, the FSSP is not very mobile, requiring about 12 hours to set up or tear down. Mobile storage and haul capacity in the light FSB is supplied by three 1,200 gallon tank and pump units. Therefore, the mobile fuel haul capacity of the light-heavy brigade is 50,707 gallons.

Table 2-15, FM 101-10/1/2 computes light-heavy brigade fuel requirements for the first day of combat at 38,808 gallons, dropping to 27,273 gallons by day five. Therefore,

the brigade has more than enough capability to haul its own fuel. The light FSB must then refuel itself, and provide a source of fuel for the heavy task force. With the FSSP, the light FSB can provide the fuel needed for the light-heavy brigade.

However, task force fuel trucks would be forced to travel to the BSA for fuel instead of having it delivered forward. This "supply point distribution" could limit the scope of the light-heavy brigade offense. To avoid the limitations of the FSSP, augmentation of the light FSB with at least five 5,000 gallon fuel tankers is needed. The best source for these fuel tankers is a heavy division FSB or main support battalion (MSB) (Appendices H and K).

### Fix

Fixing the force includes recovering, evacuating, and supplying repair parts. Fixing the light-heavy brigade is probably the one area that presents the greatest challenge to the light FSB. Simply, the light maintenance company of the light FSB has no capability to recover or fix M-1 tanks, Bradley fighting vehicles, or M-901 Improved TOW Vehicles. The bulk of the maintenance capability in the light divisions is located in the division support area (DSA).<sup>80</sup> Light FSBs provide limited direct support (DS) repair relying instead on extensive maintenance exchange items (MEI) like machine guns, radios, night sights, etc. Even if the light FSB's had the maintenance capability, receipt and

stockage of repair parts for the heavy force would still be a problem.

The class IX repair parts system in the LID is without parts for M-1's and Bradleys. Using table 2-23 from FM 101-10-1/2 one determines that the light-heavy brigade class IX requirement is 5.5 ST per day. The maintenance company of the light FSB can store and distribute about 2 ST of class IX per day and will not stock the type or quantity of class IX parts needed by the heavy force. According to Appendix A, FM 71-100, the heavy force cross attached to a light brigade must come with enough class IX stock available for maintenance and repair. As noted earlier, the haul capacity of the task force is primarily dedicated to moving class I and class V. Additionally, the task force does not possess the ability to manage a large number of direct support repair parts. Consequently, a class IX support package with transport must come with the attached heavy task force as it did on NTC rotation 90-8 (Appendix H). With the proper repair parts available, the remaining task of "fixing" the light-heavy brigade is to determine its maintenance load.

Using a worst case loss ratio of 25% per day with 80% repairable and 20% nonrepairable, the estimate is that in each day of combat, the light-heavy brigade will sustain 15 combat vehicles damaged and three destroyed. Of the 15 repairable vehicles, 80% (12) are repairable at the FSB level or above. The light FSB will need significant heavy



maintenance repair and recovery assets to make this happen. A team similar to that deployed for NTC rotation 90-8 would provide the minimum essential support, (Appendices H and K).

#### Move

FM 100-5 Operations states, "Men, equipment, and supplies must be moved rapidly and in quantity to support operations." To accomplish its movement mission, the light FSB has eighteen 5-ton cargo trucks, one 5-ton truck with 22 and 1/2 ton trailer, and six light cargo trucks.<sup>81</sup> These vehicles are generally committed to moving soldiers, class V, and class I missions. The attachment of a heavy task force could quickly overwhelm the light FSB in the class IX (repair parts) area alone. The transportation motor transport (TMT) company of the light division MSB provides trucks for movement of other selected supplies and troops. During NTC rotation 90-8, a heavy TMT company was barely enough to support the brigade.

Appendix H outlines the significant number of trucks taken from the heavy division for NTC 90-8. When the light-heavy brigade is the only unit in combat, this may not be a problem. However, if the heavy division from which the heavy task force was drawn has other missions in theater, the 90-8 solution is unworkable. Appendix A to FM 71-100, figure A-8 supports this position indicating that the heavy battalion support package include two heavy equipment

transport (HETs) trucks but no other dedicated transportation assets. HETs represent the unique transportation asset that the heavy force would need. (Appendix K) In either case, with a truck company dedicated to move light-heavy brigade troops and supplies, we must still consider the protection of valuable CSS assets.

#### Protect/Command & Control

This function highlights the real advantage of the FSB structure over the old FASCO/FAST concept. The light FSB provides a complete command and control cell with which to plan rear operations and respond to all levels of threat. Every CSS unit is responsible for its own local security. However, it is the light FSB commander and his staff that forms CSS units into base clusters and controls the rear area for the light-heavy brigade commander.<sup>82</sup> The light FSB commander and staff also provide flexibility in the BSA by establishing a habitual support to supported relationship. The question of "Who is in charge?" is finally answered. The benefits in unity of command alone should improve the chances of survival of key CSS assets. Further, because the FSB is now standard in heavy and light divisions, heavy and light unit CSS planners will readily understand the key support issues when attachment occurs. If communication is the essence of problem solving, then the FSB command structure will go a long way in improving light-heavy sustainment.

### Summary

By utilizing the six sustainment functions as measurement criteria, the effectiveness of the light FSB in support of a light-heavy brigade is quantified. A recapitulation of each function follows:

Man-- Given a M-M-T ration cycle and augmentation by an area support section from the heavy MSB, the light FSB can provide sufficient class I and medical support to the brigade.

Arm-- The FSB ATP can deliver the required 82 ST of ammunition to the brigade. In turn, the brigade has the necessary haul capacity to move ammunition to the user.

Fuel--The FSB has the capability to store the required 38,000 gallons of fuel, but cannot move it. Augmentation by five 5,000 gallon tankers from a heavy division is recommended.

Fix-- Virtually no capability exists on the part of the light FSB. A suggested augmentation package from a heavy division is at Appendix K.

Move-- With the exception of HETs, the light division should provide required transportation support.

Protect-- Potentially, this function provides the greatest benefit supplied by the light FSB. With a unified command and control structure, logistics support and rear security should improve dramatically.

This concludes the analysis of the light FSB's ability to sustain a light heavy brigade. The final chapter combines the analysis with lessons learned from the historical background, REFORGER 90, and NTC rotation 90-8. The results answer the research question, "Can the light FSB sustain a light-heavy brigade in combat?"

## CHAPTER VII.

### CONCLUSION/RECOMMENDATIONS

The more I see of war, the more I realize how it all depends on administration and transportation... It takes little skill or imagination to see where you would like your army to be and when; it takes much knowledge and hard work to know where you can place your forces and whether you can maintain them there.--General A. C. P. Wavell

The purpose of this study was to determine the capability of the light FSB to sustain a light-heavy brigade. In an attempt to answer the research question, the study examined the light division, its history, operational tests of light-heavy brigades, their shortcomings, the formation of the light FSB, and its capabilities for support.

In chapters two and three, a review of the history of the light divisions in WW II indicated that two of three were inactivated primarily because of their inability to sustain themselves. The remaining light division, the 10th Mountain Division, deployed to Italy. However, it received heavy equipment augmentation and conducted successful light-heavy operations.

Chapter four introduced the modern version of the 10th Mountain Division participating in exercise "Certain Shield," REFORGER 1990. Like its predecessor in WW II, the 10th Mountain Division received heavy assets to conduct (simulated) combat operations. After action reports from REFORGER 90 indicated a need for change in the light DISCOM. Specifically, the FSB organization was recommended as a replacement for the FASCO/FAST structure.

Chapter five reviewed NTC rotation 90-8 which reinforced the conclusions of REFORGER 90. During rotation 90-8, the light-heavy brigade experienced problems in maintenance, medical support, rear security, and command and control. After action reports showed the bulk of logistics problems were attributable to the absence of a common combat service support structure between light and heavy forces. Light division conversion to the FSB structure was viewed as one solution to the problem. General Vuono, the Army Chief of Staff, ordered light division conversion to the FSB structure in August, 1990.

In chapter six, analysis of the light FSB indicated shortfalls in its abilities to support the light-heavy brigade. Specifically, shortages in the ability to refuel and maintain the heavy task force require that the FSB be augmented by CSS assets from the heavy division. The support matrix at Appendix K outlines additional support required from the heavy division FSB or MSB to support a light-heavy brigade. Notably, the introduction of the light FSB means that the heavy support package will not need the extensive command and control element, truck company, or division support element as it did for NTC rotation 90-8. Therefore, the "cost" of providing support to a detached heavy battalion drops dramatically-- from 249 personnel and 108 vehicles used for NTC rotation 90-8 (Appendix H) to a recommended 100 personnel and 28 vehicles (Appendix K).

Can the light FSB support a light-heavy brigade in combat? The answer is yes, if properly augmented with assets

from the heavy division. The support matrix at Appendix K offers heavy and light planners a couple of ways to solve the sustainment problems.

### Recommendations

Based on the findings of this study, my recommendations fall into the categories of doctrine, and tactics, techniques, and procedures (TTP).

Doctrine. The primary doctrinal document for the light FSB is FM 63-2-1 Light Infantry Division Support Command (draft). Appendix A to FM 63-2-1 discusses in vague, general terms, the support for the light-heavy brigade.<sup>83</sup> Further, Appendix A states that no matter what assets it is given, the light FSB is not capable of supporting the light-heavy brigade.<sup>84</sup> This proposition contradicts the reason the light FSB's were created--to enhance interoperability and improve command and control. It also assumes that the heavy FSB can afford to give up a significant part of its support assets. There is no discussion of what the light FSB is capable of. The analysis of this study shows that the light FSB adds a new dimension to considerations for light-heavy support, particularly in command and control of CSS assets and the brigade rear area. FM 63-2-1 needs to embrace the possibilities that the light FSB offers for light-heavy sustainment, rather than burden the heavy force CSS structure.

Other doctrinal publications such as FM 71-100 Division Operations, and FM 100-15 Corps Operations address light-heavy operations in a limited, cursory manner,

with little regard for logistics. Because of this doctrinal void and to make this study as current as possible, the author sent an informal survey to support operations officers of each light FSB (Appendix J).

Surprisingly, none of the respondents indicated that they had even heard of FM 63-2-1. Ostensibly, doctrine should provide a foundation with which commanders can develop training programs. Two survey respondents indicated that in the absence of doctrine, commanders and staff officers are developing training plans to support their various contingency missions; including support of a light-heavy force. It appears that the Army has acquired an organization without disseminating the doctrine for its employment. Fundamentally, doctrine needs to be developed and disseminated before the Army fields an organization instead of after. This will prevent the type of uncertainty about the capabilities of the light FSB that the survey results highlight. Standardized doctrine would also provide a link between light and heavy sustainment--an effect necessary for the support of a light-heavy brigade.

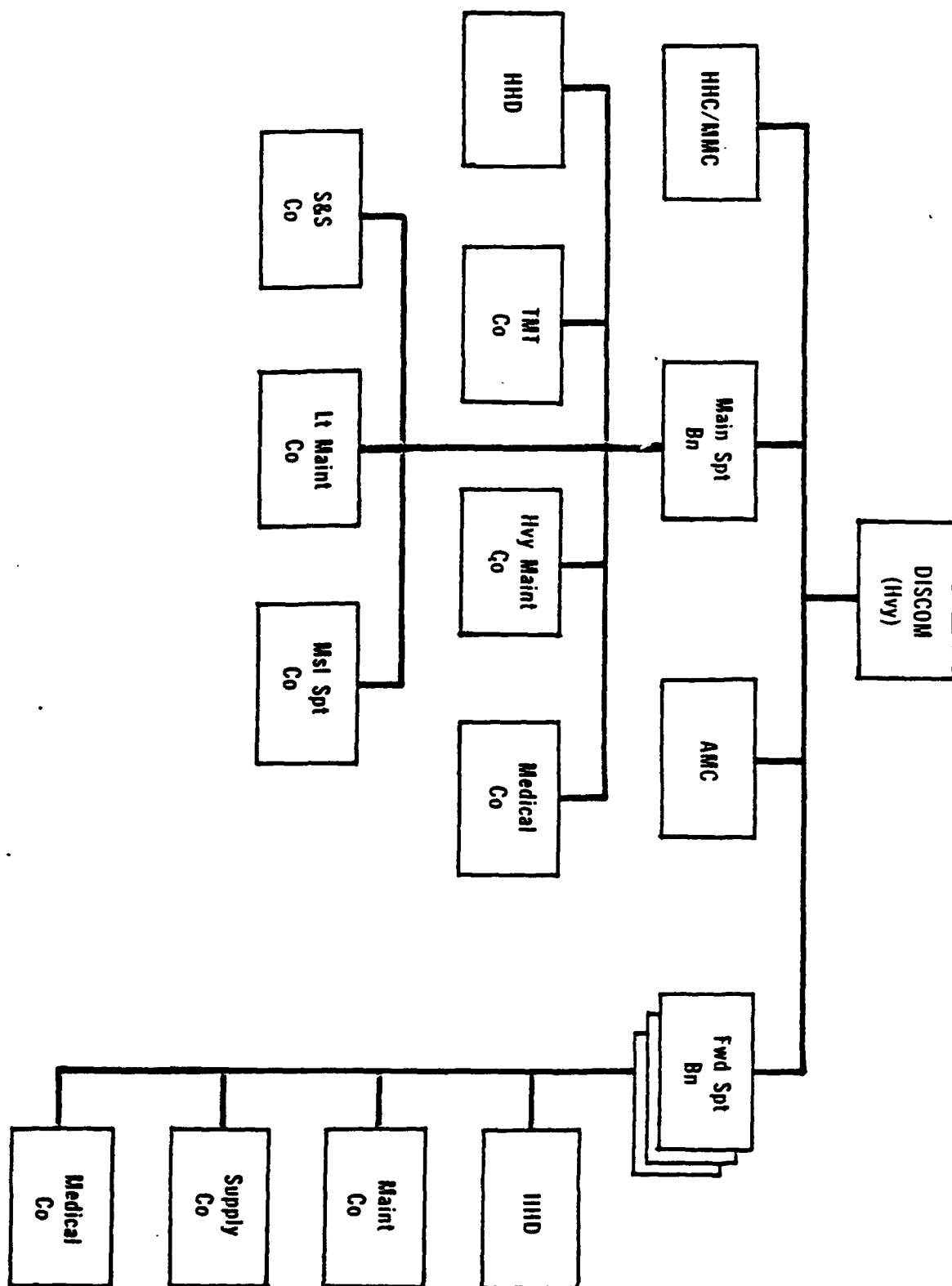
Tactics, Techniques, and Procedures. The current mission training plan for the light FSB offers no advice for supporting a mix of forces.<sup>85</sup> Yet, field tests like REFORGER 90 and NTC rotation 90-8 show the need for standardized procedures between light and heavy CSS organizations. To prevent the inefficient use of limited resources, FM 63-2-1 and other doctrinal manuals need to be specific about support of the light-heavy brigade. This



could be done by outlining tactics, techniques, and procedures (TTPs) for light and heavy planners to use when forming a light-heavy brigade. Appendices H and K of this study offer some options.

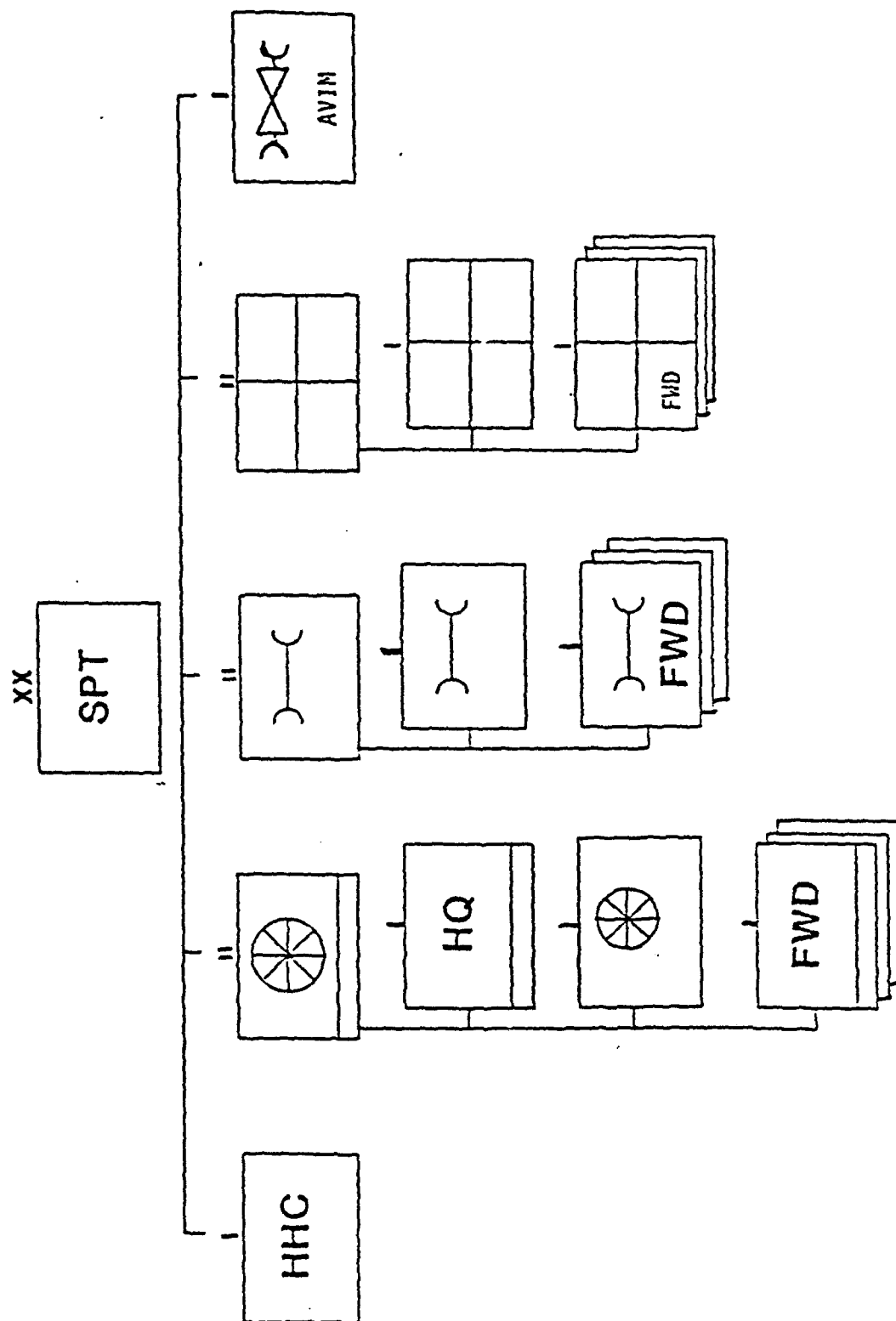
In the future, it is probable that the Army will participate in a greater number of light-heavy operations. The dynamics of a smaller force would suggest the light-heavy brigade is becoming a more viable option. Current doctrine and TTPs do not support the sustainment of a light-heavy brigade. Until doctrine catches up, it remains the task of planners to develop TTPs or standard operating procedures that allow maneuver commanders the flexibility to tailor forces for mission accomplishment.

APPENDIX A

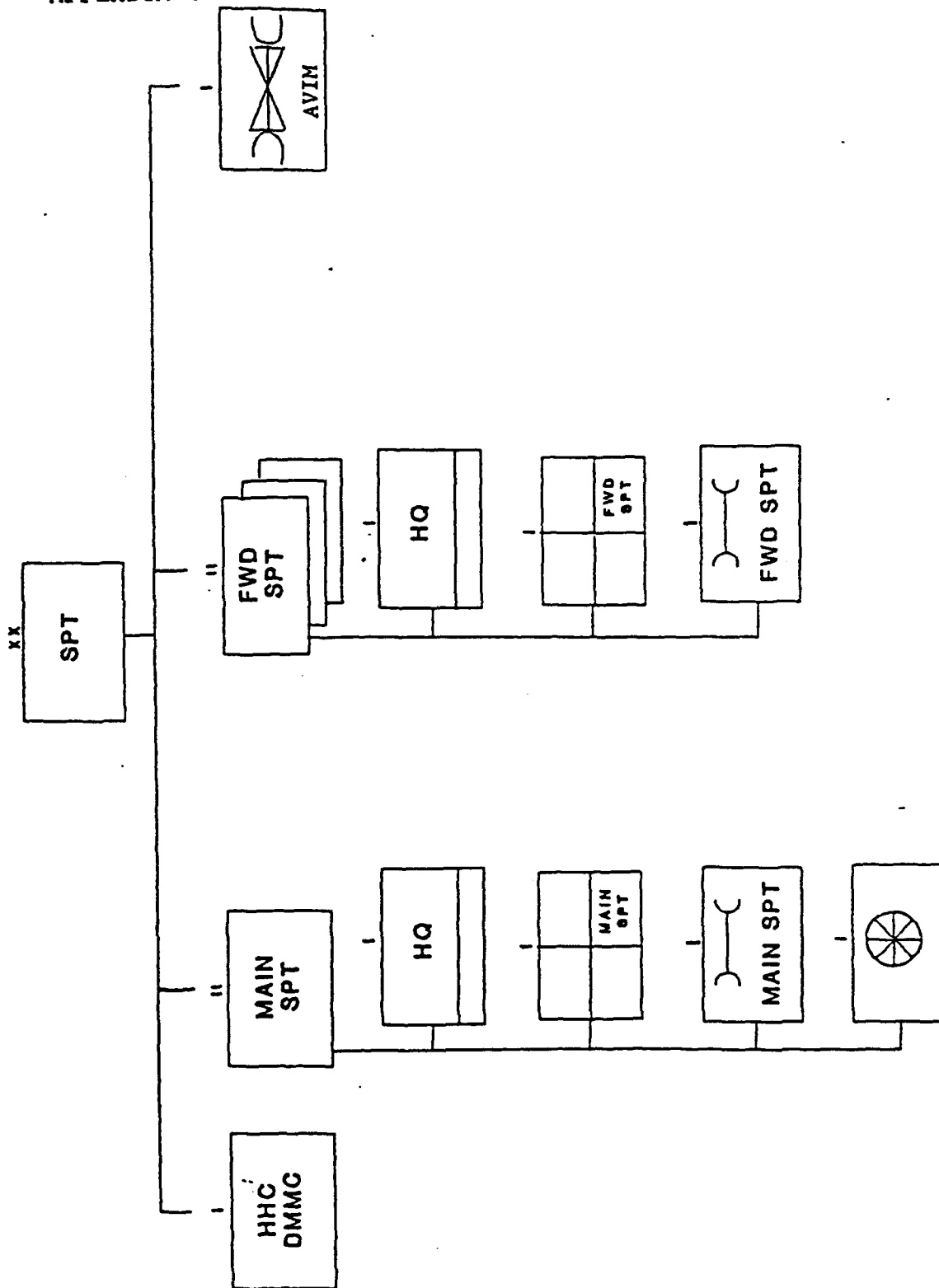


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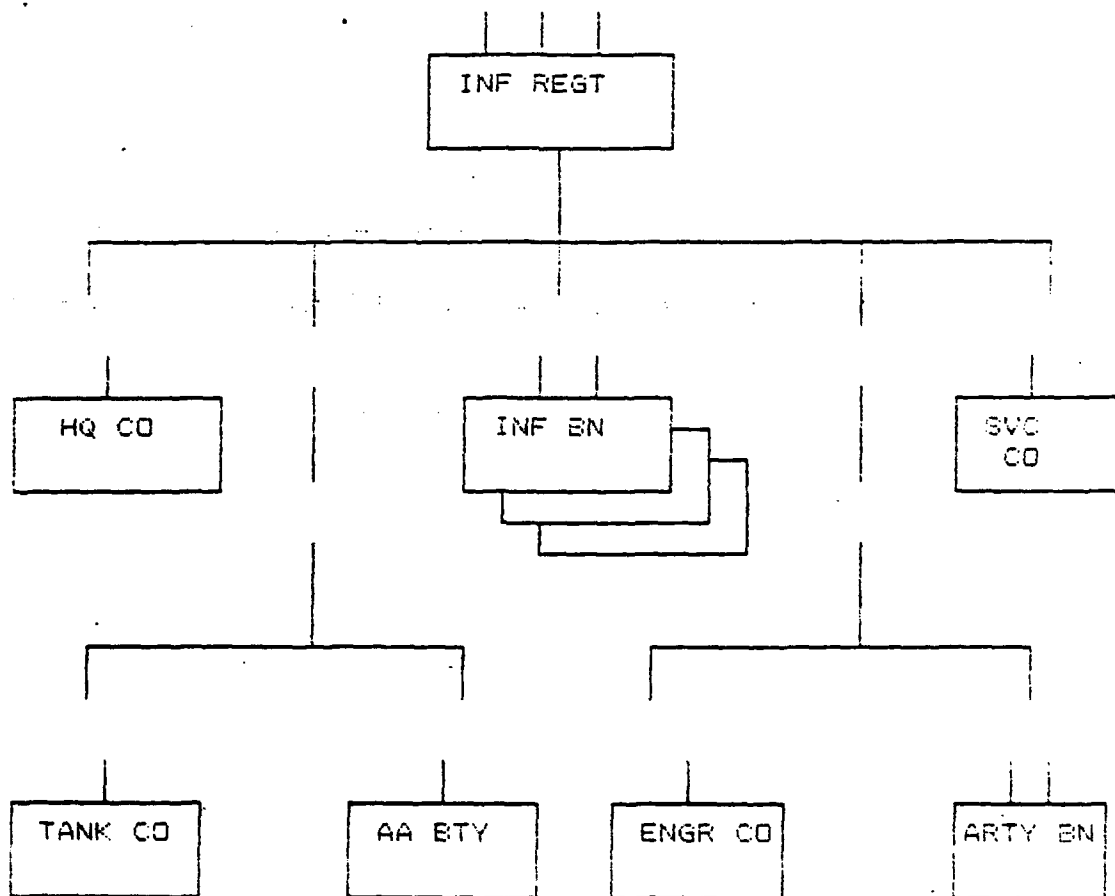
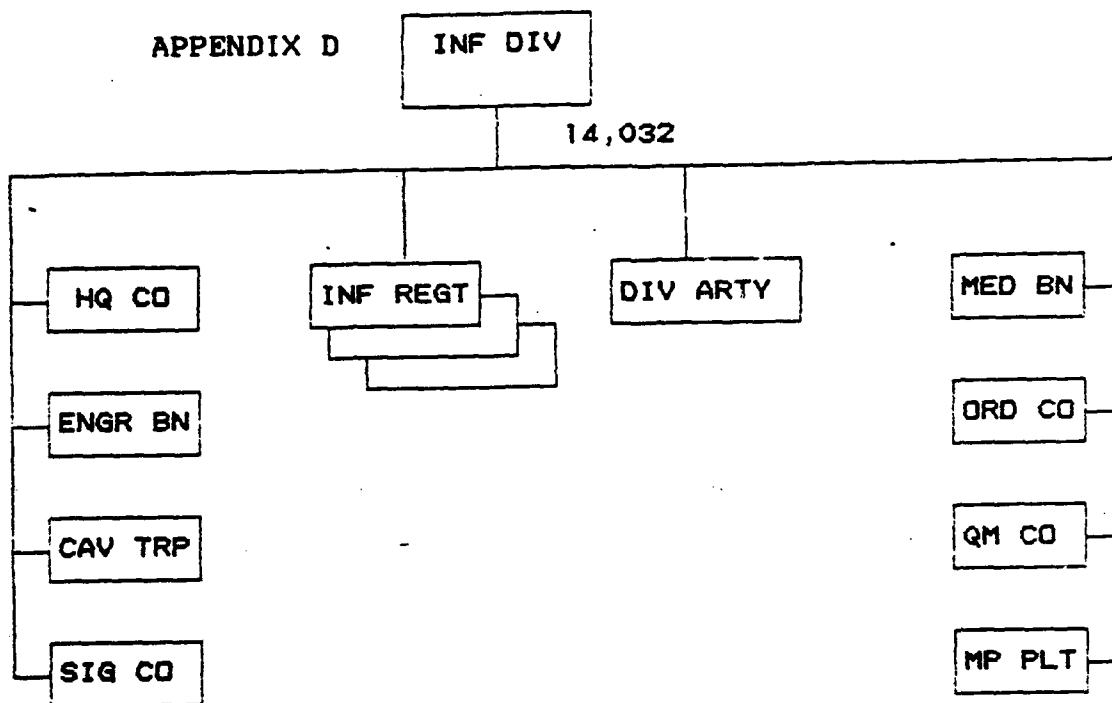
# APPENDIX B



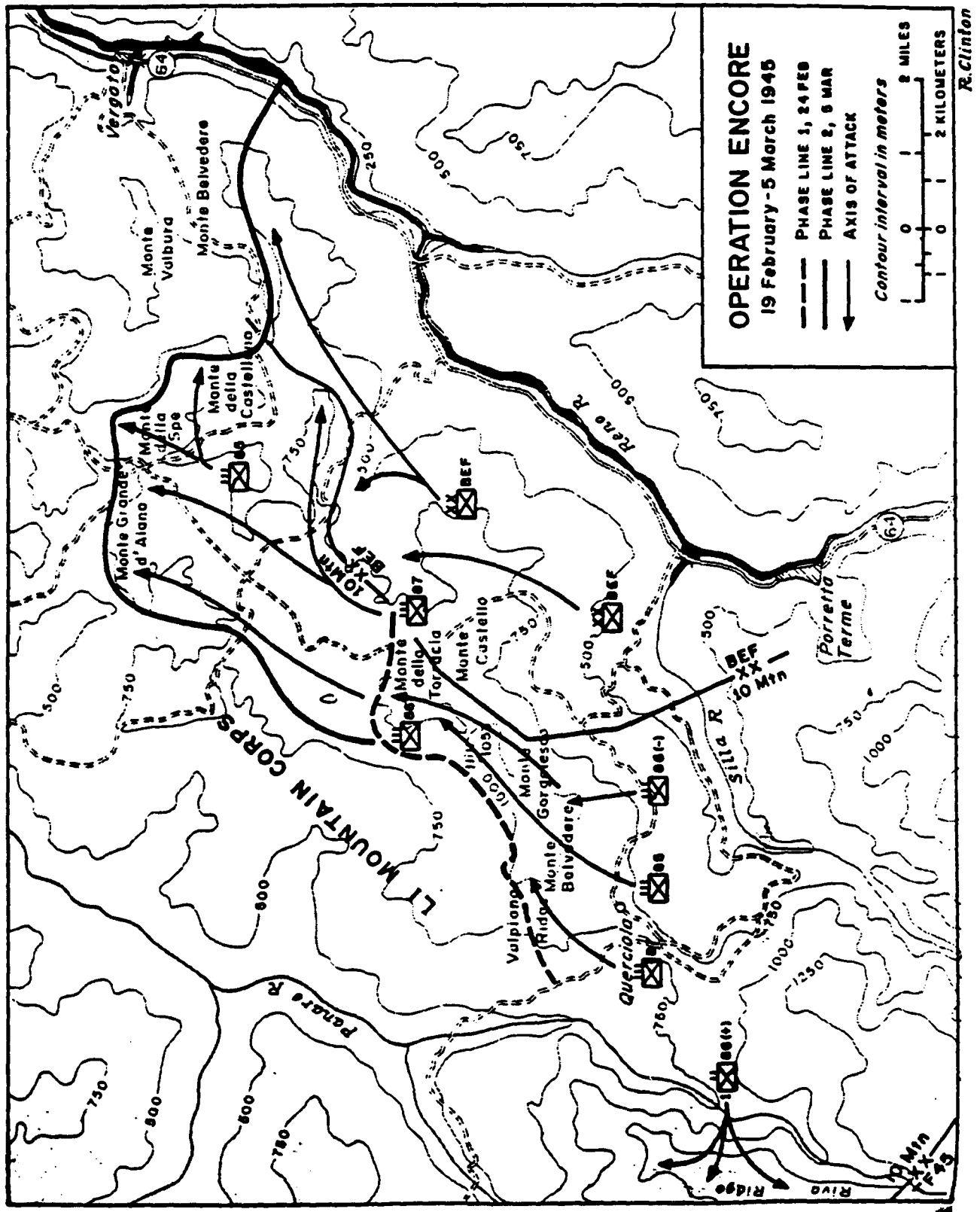
# APPENDIX C



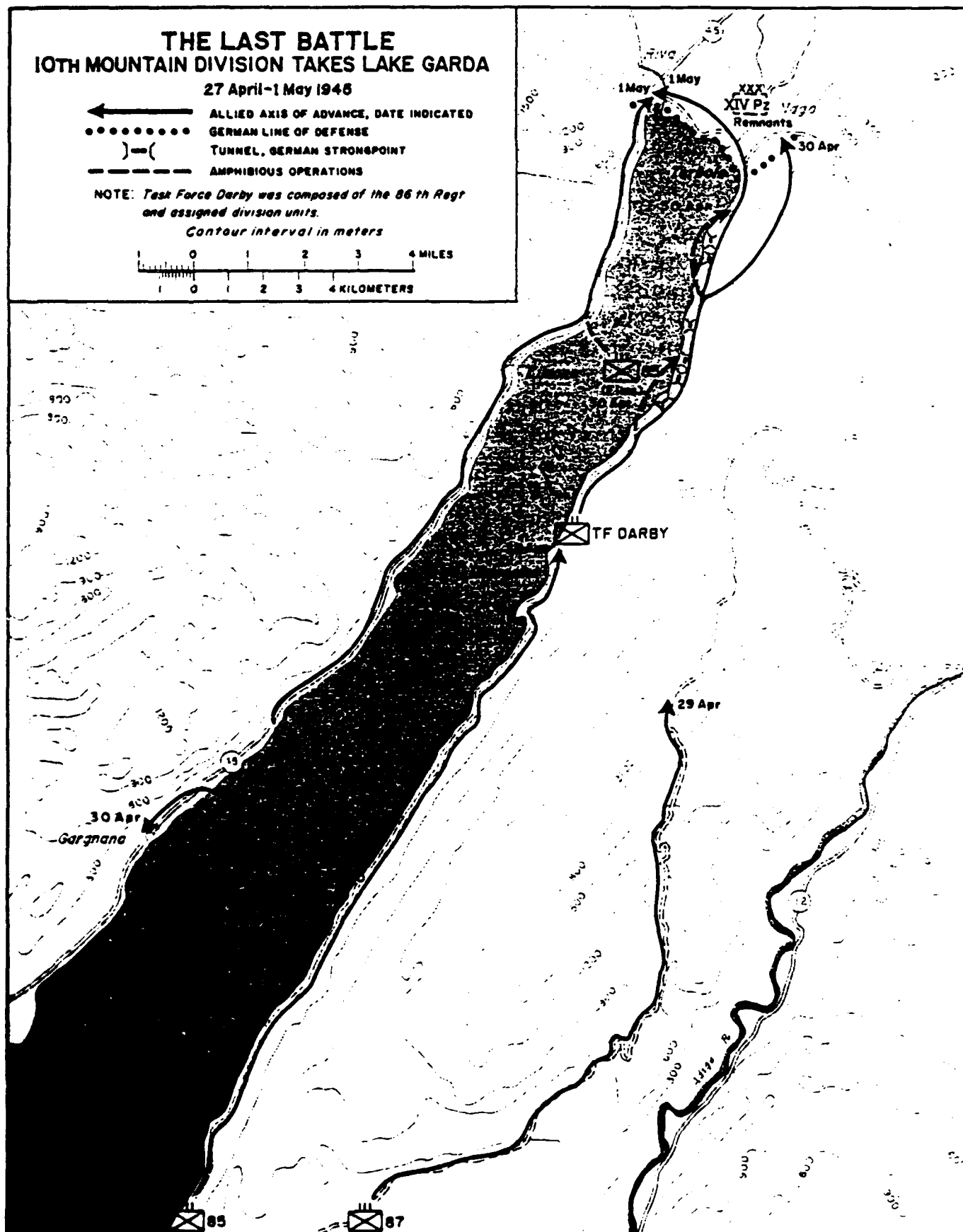
# APPENDIX D



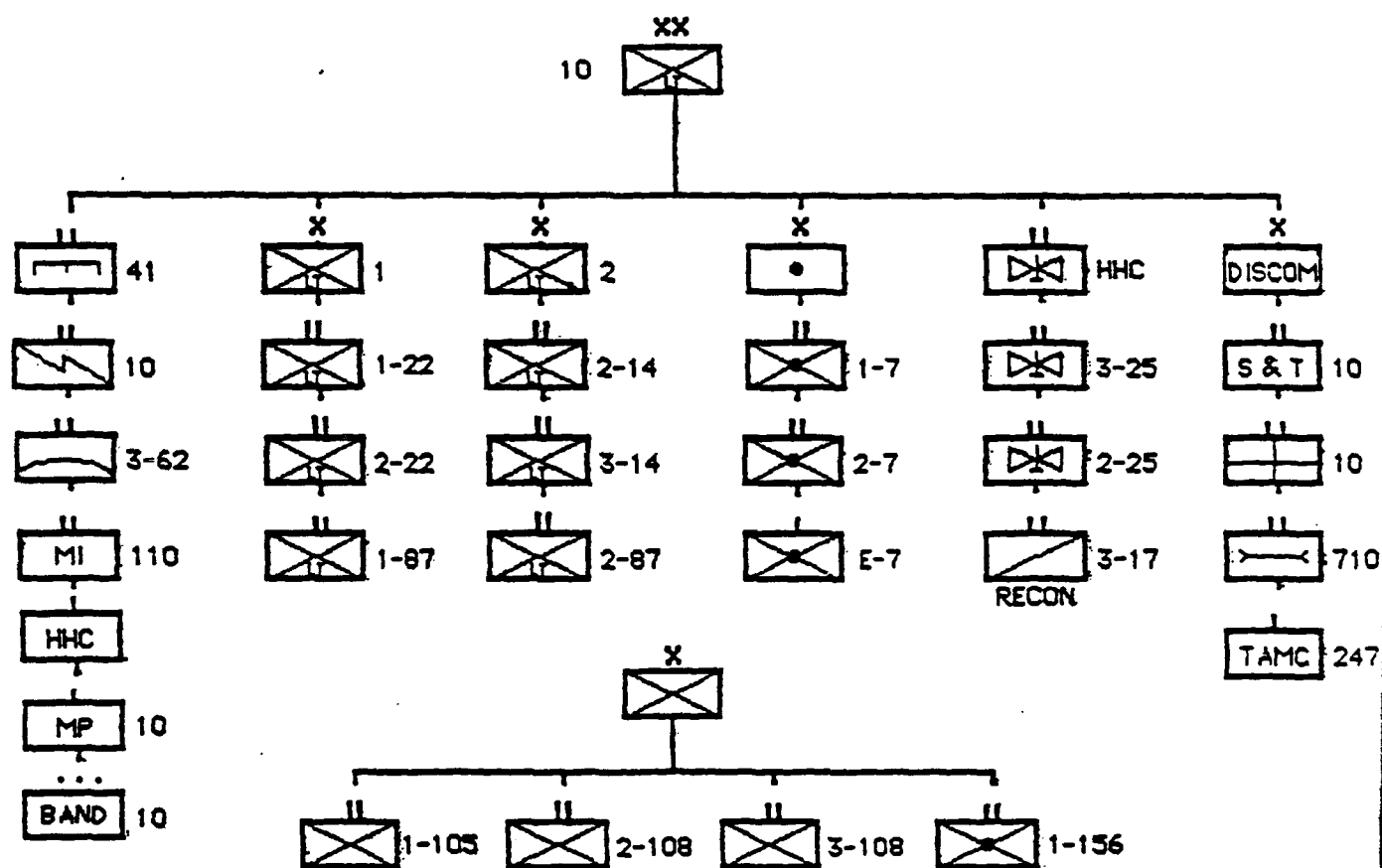
NOTE: One or all of the four above units may augment the regiment for a specific operation.



APPENDIX F-- SOURCE: Ernest F. Fisher Jr., The United States Army in World War II: Cassino to The Alps (Washington D.C., Center for Military History, 1977), 509.



# APPENDIX G





## APPENDIX H

### SUPPORT PACKAGE LIGHT/HEAVY NTC ROTATION (ASSUMING ATTACHED OPERATIONS) (21 OCT 89)

1. In April 1990, the 1st Infantry Division (Mech) will deploy TF 5-16 to Ft Irwin as a part of a "Light/Heavy" rotation with a Brigade from the 7th Infantry Division. Draft task organization is as follows:

2 - M-1 companies	1- Headquarters company
2 - BFV companies	
1 - Anti-tank company (M901)	
1 - Engineer company	
1 - ADA plt	
1 - Chemical plt	
1 - Military Intelligence team	
1 - 101 SB (-)	
1 - Division Support Element (DSE)	

Total personnel- Approximately 1000

Combat Vehicles- 30 M-1s, 30 BFV's, 18 M901's, 3 Vulcans

#### 2. Proposed Support Package:

##### a. Class I/Water- DSE MISSION

b. Class II, IV, III pkg- 15 sets of TA-50 drawn from Ft. Riley, maintained in BSA by A co 101st Spt Bn (-). Class III package, basic load with task force, bulk stockage with DSE, high demand items in BSA. Class IV uploaded with task force, remainder stocked with DSE in standby status

Personnel Required: 6- 76V's,

Vehicles: 1- M1008, 2-5 ton cargo,  
1 -4kforklift

c. Class III (Bulk)- Bulk fuel drawn from Ft. Irwin POL farm by DSE, transported forward to BSA and transloaded. A co 101SB provides supply point distribution and the ability to support forward. Estimate indicates that task force may consume as much as 35,000 gal DF2 per day.

Personnel Required: 10 77F's , 1 Lt, 1 E-6.

Vehicles: FSB-5-5000 gal tankers, 1 MOGAS  
TPU, 1-M1008

d. Class V - Ammo drawn from Ft Irwin, ASP established by DSE, ATP initially established in BSA then at live fire.

Personnel Required: 6- 55B's, 2 62F's, 1 E-6

Vehicles: 1 6k forklift, 1 M1008

\* note S&P trailers w/prime movers supplied by DSE  
transportation assets from B co 701 SB.

e. Class VIII- Push package drawn from Ft Riley stocked by task force and C co 101SB(-). Emergency resupply from Ft Irwin Hospital.

f. Class IX- Task Force draws Bradley/M-1 PLL from Ft Irwin.

-101SB(-)will draw ASL, major assemblies.

-Requisitions will be processed from task force to 101SB (-) to DSE CI IX section to Ft Irwin activity.

Personnel Required: 13 76V's, 2-76P's, 1-WO

Vehicles: 6 ASL Vans, 3- M818's S&P trailers,  
2- 5 ton cargos.

g. Medical Support- A small medical support team capable of assisting in treatment and ambulance support from C co 101 SB. Treatment section located in BSA. 2 track Ambulances forward at Battalion Aid Station, 2 HUMMV's at the Ambulance Exchange point. Overflow (real world) evac'd to Ft Irwin Hospital. (All MED support from BSA)

Personnel Required: 25- 91A&B's, 1-PA, 1-Lt, 1-MD

Vehicles: 6 Ambulances, (2 track, 4 HUMMV)

1 M1009, 1 Expando Van,

2 - 5 ton cargos

h. Maintenance Support- Reinforced MST capable of troubleshooting and repair of armament and automotive systems. An organizational maintenance platoon (-) will assist in maintaining support element vehicles.

Personnel Required: 45 DS with 1 Lt as OIC, 1-CW2 forward with MST at UMCP.  
12 organizational with 1 E-7 in charge.

Vehicles: 1 DSETS Van, 1- M88 wrecker,  
2 M984 wreckers, 2- M35A2's,  
2-5 ton cargo, 4-HUMMV's,  
3-M1008, 1- M1009,  
1-M818 with S&P trailer.

i. Transportation Support- Provided by B co 701st Support Bn, and 1st Engineer Bn.

J. Command and Control- Reduced scale of an FSB headquarters. (ASSUMES NO SUPPORT OR AUGMENTATION FROM THE 27TH I.D.)

**Personnel Required:**

1. 1- Spt Element Cdr
2. 1- Spt Element XO/ SPT OPS
3. 1- Spt Element S-3/Battle Captain
4. 1- Spt Element S-4
5. 1- Spt Element 1SG
6. 1- Spt Element OPS NCO
7. 1- Spt Element SPT OPS NCO
8. 1- Spt Element Personnel NCO
9. 1- Spt Element COMMO NCO
10. 1- Spt Element NBC NCO
11. 1- Spt Element Graves Reg NCO
12. 1- Wire team chief
13. 4- Radio operators
14. 7- Vehicle drivers

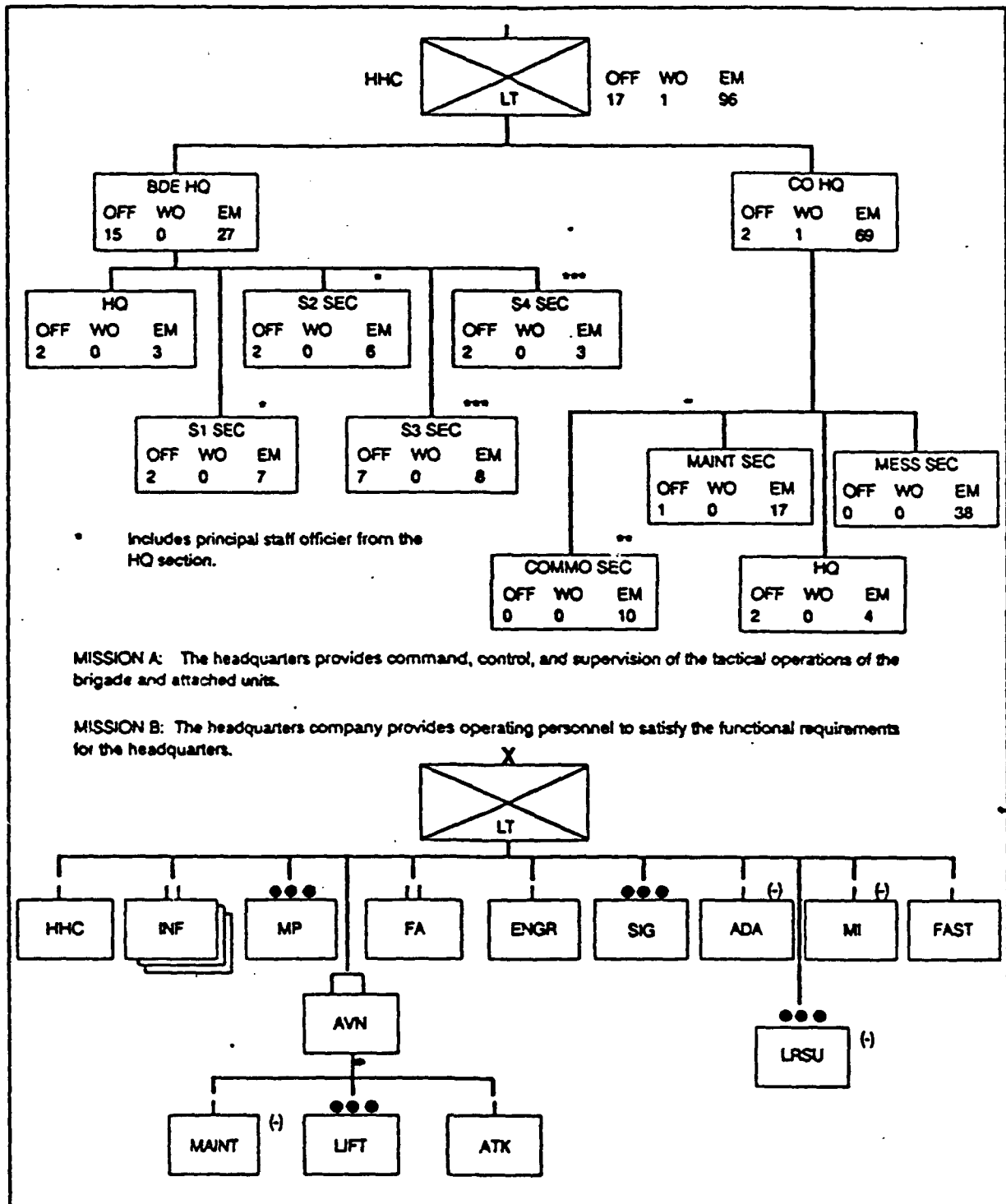
Vehicles : 5-HUMMV, 2 M1008's, 1- Expando Van, 1- 5 ton cargo, 1-M1009

**3. Proposed Support Package Breakout By unit**

- |                   |                           |
|-------------------|---------------------------|
| a. HHD, 101st SB  | 23 personnel, 10 vehicles |
| b. A co, 101st SB | 23 personnel, 13 vehicles |
| c. B co, 101st SB | 76 personnel, 28 vehicles |
| d. C co, 101st SB | 32 personnel, 10 vehicles |

**TOTALS: 101SB (-) 154 personnel, 61 vehicles**

# APPENDIX I



APPENDIX J

LIGHT FORWARD SUPPORT BATTALION SURVEY

1. What are your experiences regarding the sustainment of light/heavy forces?
2. Have you finished converting to the light FSB structure?
3. Is there anything you would change about the light FSB given the opportunity?
4. Does FM 63-2-1 (draft) provide sufficient doctrinal guidance for your battalion's mission?
5. In your view, what needs to be added or taken away from FM 63-2-1?
6. Has your battalion ever supported a light/heavy or heavy/light mix of forces? If so, what would you highlight as lessons learned from the experience? In general, how do you view the role of Corps Combat Service Support in this situation?
7. Any comments you would like to add?

## APPENDIX K

### HEAVY DIVISION SUPPORT PACKAGE IN SUPPORT OF A LIGHT-HEAVY BRIGADE

1. The primary decision that must be made when sending a heavy task force to a light brigade is how much combat service support to send along. Experience has shown that corps support assets cannot be depended on. Therefore, the heavy task force must be fairly self sufficient.

2. Two organizations could provide the support suggested, the forward support battalion of the heavy brigade, or the division's main support battalion. Since the FSB is not designed to split in two parts, it would seem the lesser of the two choices. Ultimately, the decision will be METT-T dependent.

3. Clearly, the conversion of the light division to the FSB structure reduces the command and control element required to accompany these support assets.

#### 4. THE FOLLOWING ARE MINIMUM HEAVY TASK FORCE SUPPORT REQUIREMENTS:

A. Fuel section: Approximately 12 personnel with 5-5,000 gallon tankers to provide mobile resupply for the heavy task force.

B. Maintenance Support Team- Approximately 50 personnel. Reinforced maintenance support team capable of troubleshooting and repair of armament and automotive systems. Equipment must include: one, Diagnostic test van for the M-1, M-2/3; two, M-88 recovery vehicles; three contact trucks; three, command and control vehicles; two, 5-ton trucks for unit equipment.

C. Supply support section- Approximately 30 personnel with 5 ASL vans of selected high usage class IX repair parts, and 3 5-ton tractors with 22 and 1/2 ton trailers for armored vehicle major assemblies.

D. Transportation Support: Two HETs with four drivers.

E. Command and Control- A small element from the FSB or MSR support operations section to assist the heavy support element as it plugs in to the light FSB. Approximately a four person team with two command and control vehicles.

#### TOTAL HEAVY DIVISION SUPPORT:

PERSONNEL -- 100

VEHICLES -- 28

### End Notes

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<sup>2</sup> Rand Corporation, "Ideas for Enhancing The Combat Support System for Regional Contingencies: Derived from The Operation Just Cause Experience." Draft, Unedited, (Rand Corporation: Santa Monica, CA, 1991), vi.

<sup>3</sup> Message, Commander, TRADOC to Commander, USACATA, Fort Leavenworth, Kansas, Subject: Contingency Operations at the NTC, 19 Jan, 1990. Hereafter cited as "Message, NTC 90-8."

<sup>4</sup> John A. Wickham, "Letter from the office of the Chief of Staff", 1985.

<sup>5</sup> Luane K. Levins and Benjamin F. Schemmer, "An Exclusive AFJI Interview with General Carl Vuono, USA, Chief of Staff, United States Army." Armed Forces Journal International (October, 1988), 64.

<sup>6</sup> William B. Caldwell, "Not Light Enough to Get There, Not Heavy Enough to Win: The Case of US Light Infantry," (SAMS Monograph: U.S. Army Command and General Staff College, 1987), 15.

<sup>7</sup> U.S. Army, "The Army's Long Range Plan for Fielding Light Divisions" Report to Congress (Washington D.C.: Department of The Army, 1985) , 1.

<sup>8</sup> Charles A. Peddy, "The Light Infantry Division: No Tool For the Tactical Commander," (SAMS Monograph: U.S. Army Command and General Staff College, 1989), 1.

<sup>9</sup> Jim Tice, "Grunts do Shuffle, Mech on the Move," Army Times 38 (April 22, 1991) :3

<sup>10</sup> U.S. Army, "Independent Evaluation Report (IER) for Certification of the Light Infantry Division. Vol I, Main Report." Combined Arms Center and Fort Leavenworth. March 1987.p. 1.

<sup>11</sup> U.S. Army. FM 71-100. Division Operations (Washington, DC:Department of the Army, 1990), A-7.

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16 Dr. Lynn Simms, "Historical Overview, origins of TO&E's and organization of ground troops in World War II including the Light Division" (Unpublished compilation of notes) Fort Lee, Virginia, 6.

17 Scott McMichael CSI Report No.8, "Discussions on Training and Employing Light Infantry," (Fort Leavenworth, KS, July, 1984) , 11.

18 Robert R. Palmer, "Reorganization of Ground Troops for Combat Study, No. 8" (Washington DC: Government Printing Office, 1946), 43.

19 Simms, p.47

20 Simms, p.47

21 General MacArthur as quoted by Edward Luttwak (March 1, 1983) US Army Training and Doctrine Command, Ft Monroe, VA .in Historical Analysis and projection for Army 2000, Volume 1, part 1- The United States Army of the Second World War: The Light Divisions, pp.11, 26.

22 U.S. Army "A Perspective on the Light Division: The U.S. Army's Experience, 1942-1945." (Historical Analysis series, January, 1984), 43. Hereafter cited as "Experience, 1942-1945."

23 "Experience, 1942-1945", 45.

24 "Experience, 1942-1945", 43.

25 Palmer, 47.

26 "Experience, 1942-1945", 55.

27 Simms, 39.



- 28 "Experience, 1942-1945", 52.
- 29 "Experience, 1942-1945", 52.
- 30 Hal Burton, The Ski Troops, (New York: Simon and Schuster, 1971), p.181.
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- 32 Ernest F. Fisher Jr. The United States Army in World War II: Cassino to the Alps, (Washington D.C. Center for Military History, 1977), p.428.
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- 39 Burton, 184.
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